

CITY of ANGELS



INCORPORATED IN 1912

GREENHORN CREEK ACCESS ROAD STUDY

CONSTRUCTION COST ESTIMATES

JUNE 2005

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EXECUTIVE SUMMARY

In order to determine the impacts associated with installing connector roads from Greenhorn Creek Road to various existing city streets, the City of Angels commissioned a study to determine the projected traffic impacts, required street improvements, and cost estimates for construction of the required street improvements for the potential connections. These connections are currently existing emergency access roads from Greenhorn Creek Road and are defined as follows:

Access Road A: Sierra Avenue to Tuolumne Avenue

Access Road B: McCauley Ranch Road to Gold Cliff Road

Access Road C: Greenhorn Creek Road to Finnegan Lane

A traffic study titled “Greenhorn Creek Access Road Study in the City of Angels” dated June 2005 was prepared by Prism Engineering to identify the traffic impacts of installation of one or more of the connector roads. The recommendations of this study are as follows:

1. Install Access Road B.
2. Improve Gold Cliff Road/Hillcrest Street/Mark Twain Road to a 24' wide paved cross section (in conjunction with Access Road B).
3. Install Access Road A.
4. Install Access Road C.

The report recommended installation of Access Road B at a minimum, although installation of Access Roads A and C would serve to spread the load of traffic to more streets, reducing the impact to all city streets.

This report provides information on the existing emergency access roads and city streets identified for improvement and also provides estimates of construction costs for construction of each of the three access road scenarios identified in the traffic study.

Based upon the information contained herein, the estimated cost of constructing the three access roads in order of priority are:

Access Road B: \$825,259.00 (including improvements to Gold Cliff Road and Hillcrest Street)

Access Road A: \$402,604.00

Access Road C: \$241,684.00

DEVELOPMENT OF CONSTRUCTION COSTS

1. Access Road B: McCauley Ranch Road to Gold Cliff Road

Existing Condition:

The existing emergency access road was constructed as part of Unit 1 of the Greenhorn Creek Subdivision. The emergency access road was constructed to facilitate construction of a City Minor Street Template in the future. The existing access road consists of a 956 foot long, 16 foot wide aggregate base road constructed on a 34 foot wide road template within a 50' wide emergency access easement. There is an existing 8" diameter water main which runs the full length of the emergency access road, and a 6" sewer main which is stubbed under Greenhorn Creek Road past the edge of paving at the intersection with the emergency access road. The existing construction is shown on Figure 1. Page 8 presents photographs of the emergency access road looking east from the connection to Greenhorn Creek Road and looking west from the connection to Gold Cliff Road.

Proposed Improvements:

The existing emergency access road would be improved to the City of Angels Minor Street Template as defined in the City of Angels Improvement Standards. The roadway would consist of a 28' wide paved section with curb and gutter on each side and a 4' sidewalk on one side. In addition to the roadway construction, it is recommended that a 6" diameter sanitary sewer main be extended from the existing stub at Greenhorn Creek Road to Gold Cliff Road. As the emergency access road is contained in an easement, right of way acquisition of approximately 1.6 acres will be required. Table 1 presents an estimate of costs required to complete construction of

Access Road B from Greenhorn Creek Road to Gold Cliff Road. The estimated total project cost is \$439,359.00.

2. Gold Cliff Road/Hillcrest Street/Mark Twain Road

Existing Conditions:

Existing Gold Cliff Road between Hillcrest Street and the intersection with Access Road B consists of a 630 foot long, 17 foot wide paved section with no shoulder. Hillcrest Street between Gold Cliff Road and Mark Twain Road consists of a 200 foot long, 17 foot wide and a 230 foot long, 20 foot wide paved section with no shoulders. The majority of Mark Twain Road between Hillcrest Street and State Highway 49 (Main Street) meets the 24 foot width recommendation contained in the traffic study, and therefore no improvements to Mark Twain Road are considered in this report. Figure 2 presents the limits of improvements proposed to Gold Cliff Road and Hillcrest Street. Page 8 provides photographs of both Hillcrest Street and Gold Cliff Road between Mark Twain Road and Access Road B.

Proposed Improvements:

Both Gold Cliff Road and Hillcrest Street would be widened to provide a 24 foot paved section with a 4 foot aggregate base shoulder on one side. Due to existing topography and existing residences adjacent to the existing streets, Gold Cliff Road would be widened to the west side of the existing road. Hillcrest Street would be widened to the north side of the existing road along the “Y” as shown on Figure 2. From the “Y” to Mark Twain Road, widening would occur on each side with 2 foot aggregate base shoulders on each side. Widening of Gold Cliff Road will require relocation of one existing power pole as well as modifications to the existing storm

drain and domestic water system along the street. Widening of Hillcrest Street will require modifications to the existing domestic water system along the street, as well as modifications to adjacent property near Mark Twain Road (impacts to front yards). Right of way acquisition will be required along both streets. Approximately 0.3 acres will be required along Gold Cliff Road, and approximately 0.2 acres will be required along Hillcrest Street. Tables 2 and 3 present estimates of costs required to complete improvements to both Gold Cliff Road and Hillcrest Street. The estimated cost of the Gold Cliff Road improvements is \$236,025; and the estimated cost for the Hillcrest Street improvements is \$149,875.

3. Access Road A: Sierra Avenue to Tuolumne Avenue

Existing Conditions:

The existing emergency access road was constructed as part of the Angel Oaks Subdivision. The existing emergency access road consists of 900 foot long, approximately 10 foot wide aggregate base road constructed within an emergency access easement. There are existing water and wastewater mains located within the access road. There is a large drainage course (36" diameter CMP) which traverses the access road along with fences in close proximity to both sides of the road. Figure 4 presents the limits of the proposed improvements to the access road. It should be noted that a 50 foot wide City Standard right of way will not be possible through Lot 77 of the Mark Twain Oaks Subdivision due to existing residences on Lots 76 and 68. Pages 8 and 9 provide photographs of the intersection of the existing access road with both Tuolumne Road and Sierra Avenue as well as along its length.

Proposed Improvements:

The existing emergency access road would be improved to the City of Angels Minor Street Template as defined in the City of Angels Improvement Standards. The roadway would consist of a 28 foot wide paved section with curb and gutter on each side, and a 4 foot wide sidewalk on one side. Storm drain modifications would be required at the large drainage course traversing the street. As the emergency access road is contained within an easement, right of way acquisition of approximately 1.1 acres will be required. Table 4 presents an estimate of costs required to complete Access Road A from Sierra Avenue to Tuolumne Avenue. The estimated total project cost is \$432, 604.

4. Access Road C: Greenhorn Creek Road to Finnegan Lane

Existing Conditions:

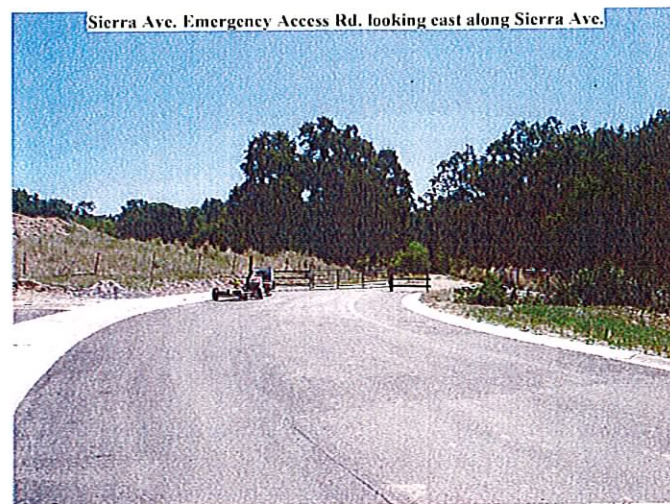
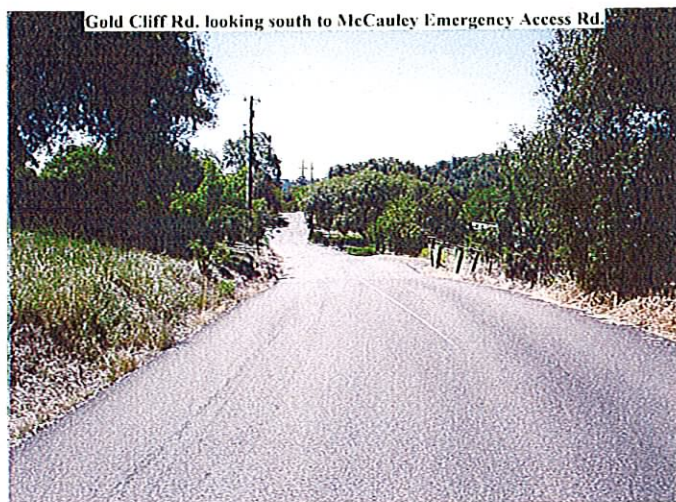
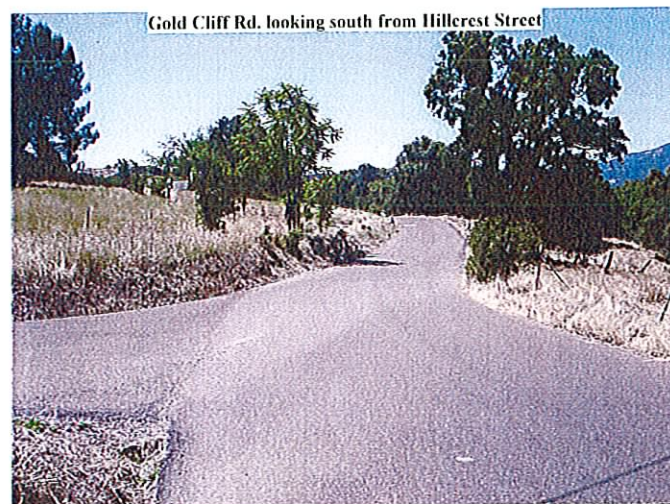
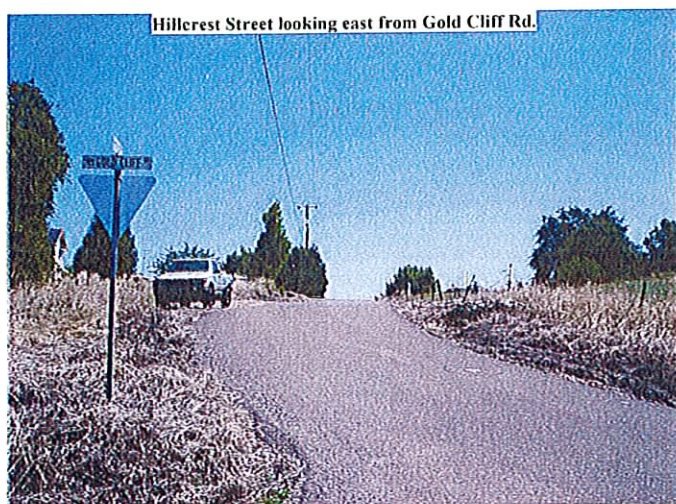
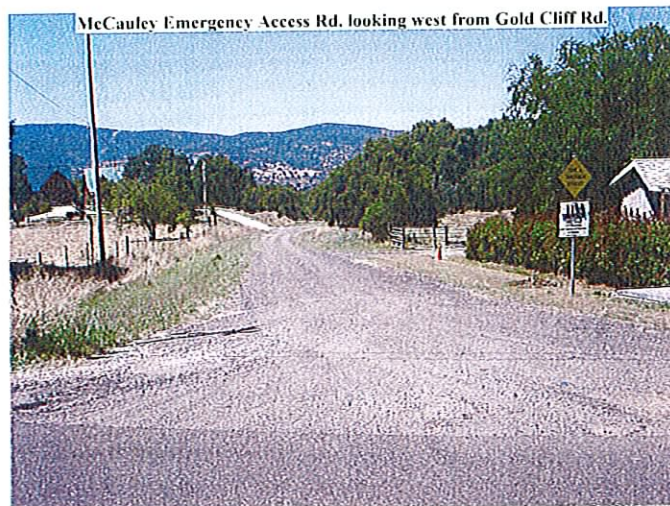
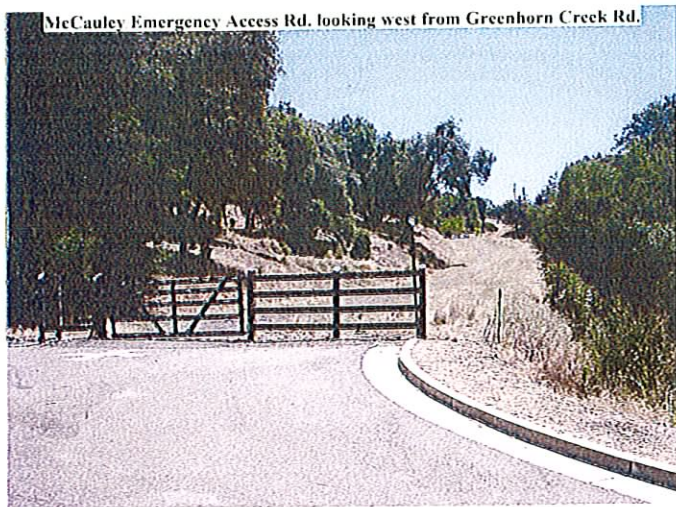
The existing emergency access road was constructed as part of the Greenhorn Creek Subdivision. The existing access road consists of a 600 foot long, approximately 9 foot wide aggregate base/asphalt concrete road contained within an emergency access easement. There is an existing wastewater main in a portion of the access road. Figure 3 presents the limits of the proposed improvements to the access road. Pages 9 and 10 present photographs of the intersection of the access road with Greenhorn Creek Road and Finnegan Lane as well as along its length.

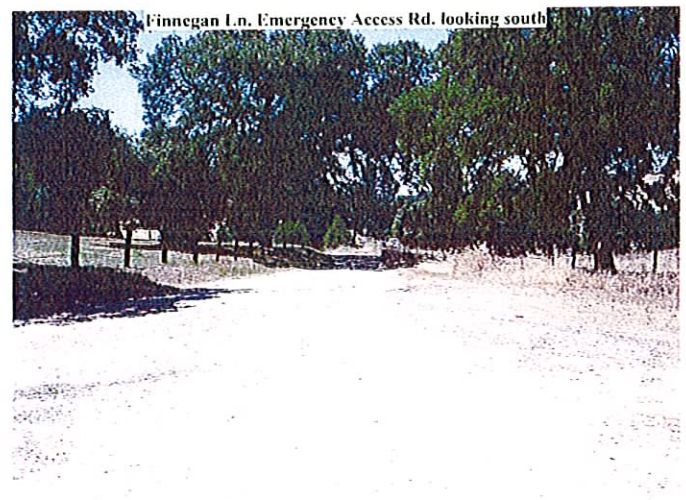
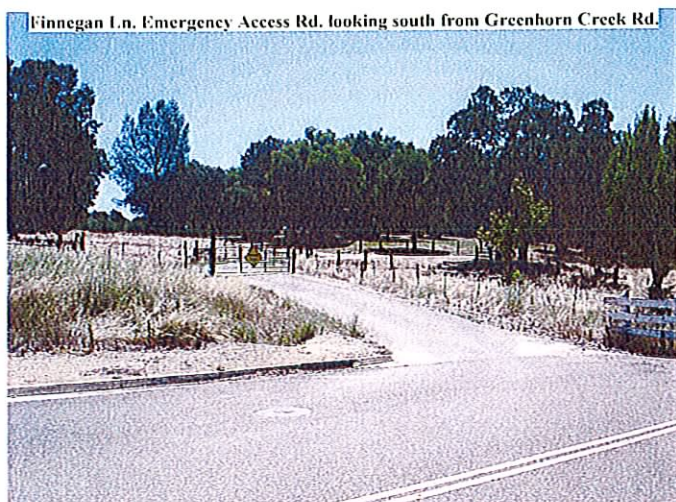
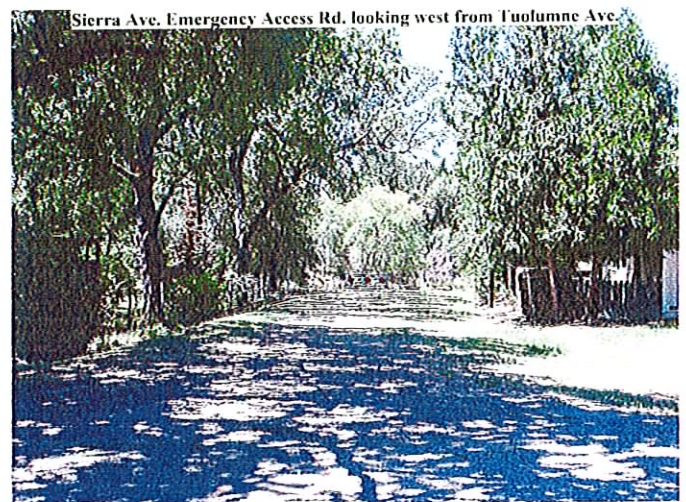
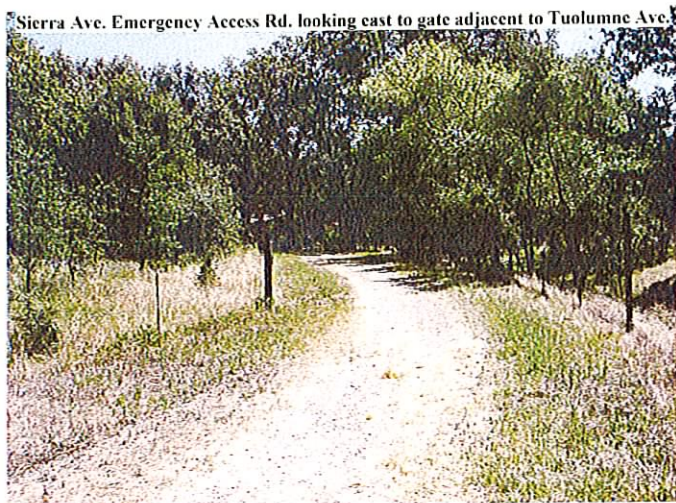
Proposed Improvements:

Greenhorn Creek Road is planned to be extended south in the future which will provide for a new connection with Finnegan Lane. With the future extension, the emergency access road will be abandoned and disconnected from its present intersection with Greenhorn Creek Road. Therefore, it is not recommended to

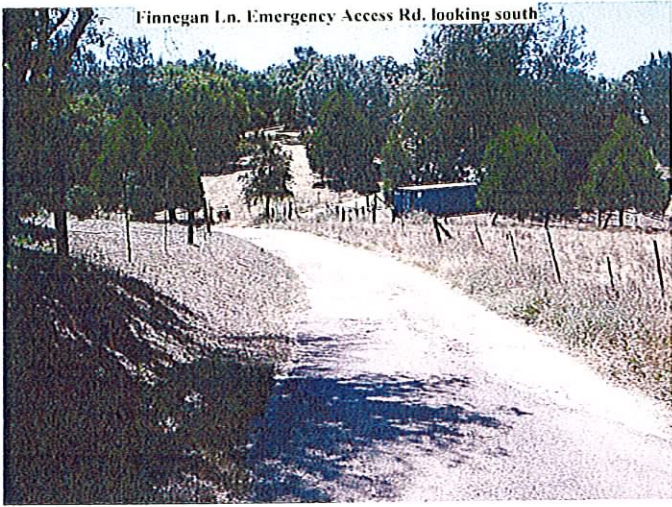
improve the emergency access road to the city's minor street standard as the improvements will be temporary. To provide for traffic safety prior to extension of Greenhorn Creek Road, it is recommended the access road be improved to a 24 foot wide paved section with 4 foot wide aggregate base shoulders. Minor drainage improvements will be required as part of the street construction. Table 5 presents an estimate of cost required to construct the Access Road C from Greenhorn Creek Road to Finnegan Lane. The estimated total project cost is \$271,684.

GHC Access Road Study.wpd

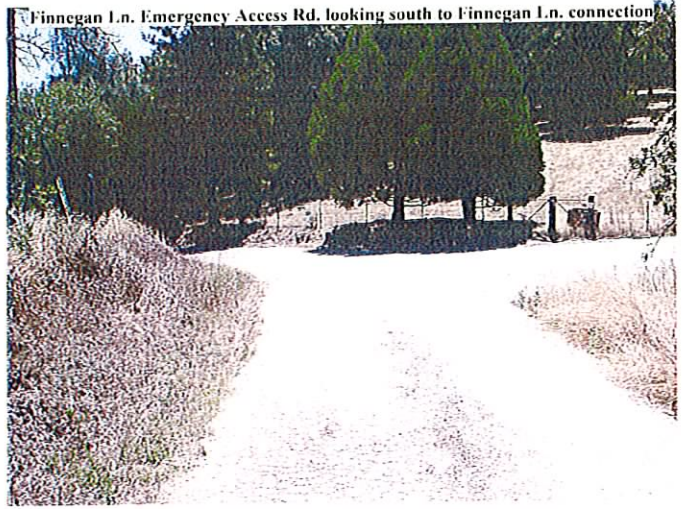




Finnegan Ln. Emergency Access Rd. looking south



Finnegan Ln. Emergency Access Rd. looking south to Finnegan Ln. connection



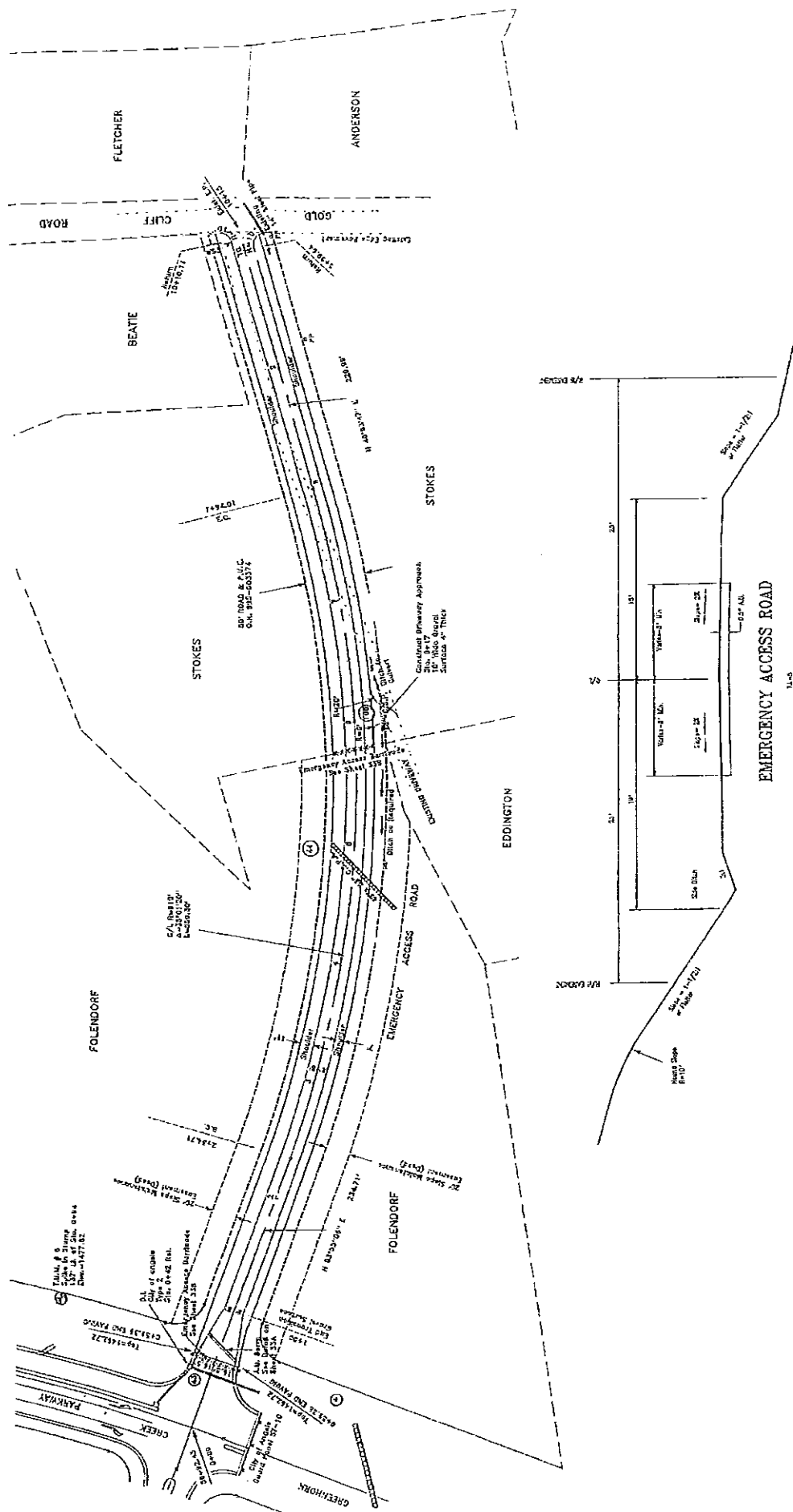


FIGURE 1: ACCESS B - McCAULEY RANCH ROAD/GOLD CLIFF CONNECTOR

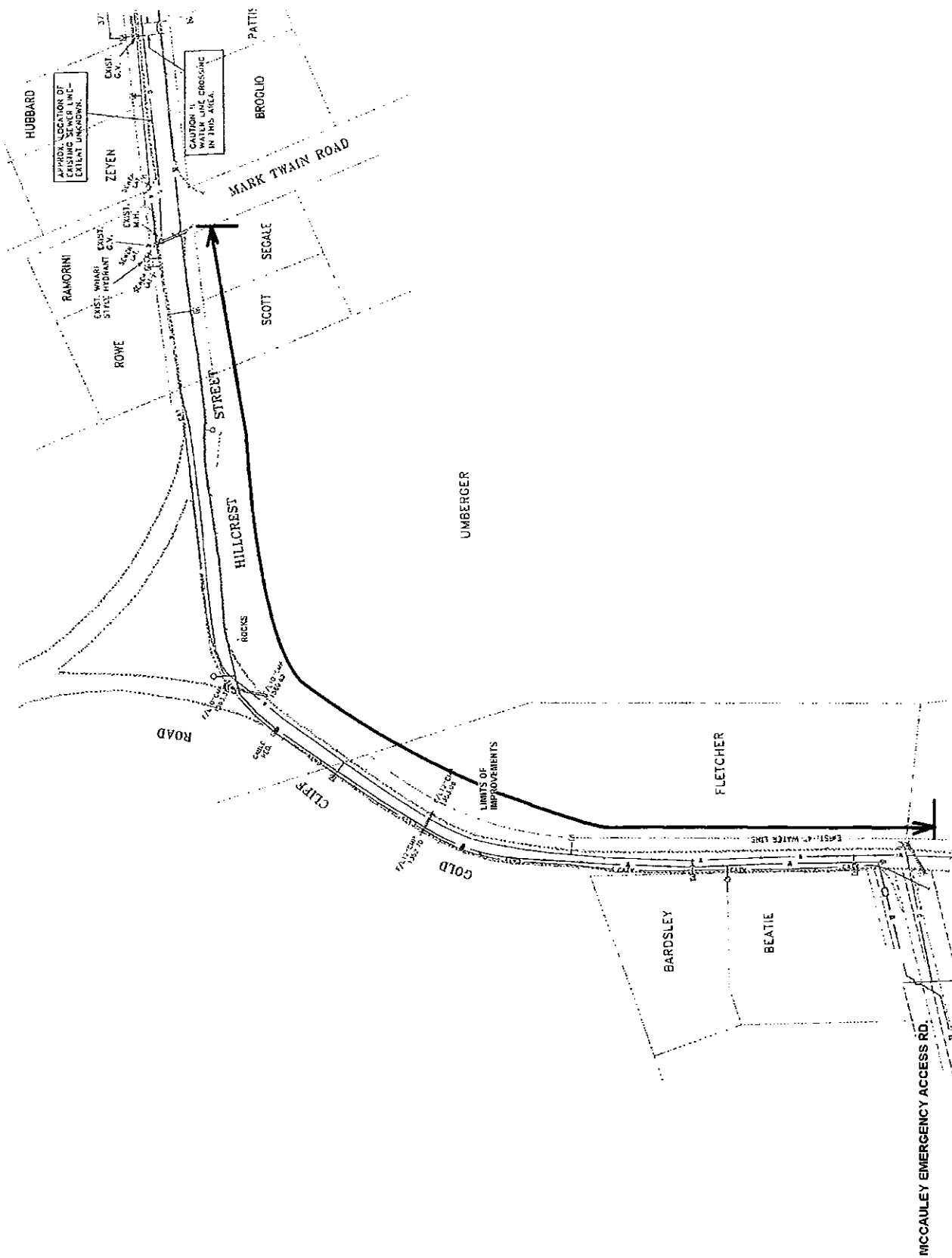


FIGURE 2: GOLD CLIFF ROAD/HILLCREST STREET IMPROVEMENTS

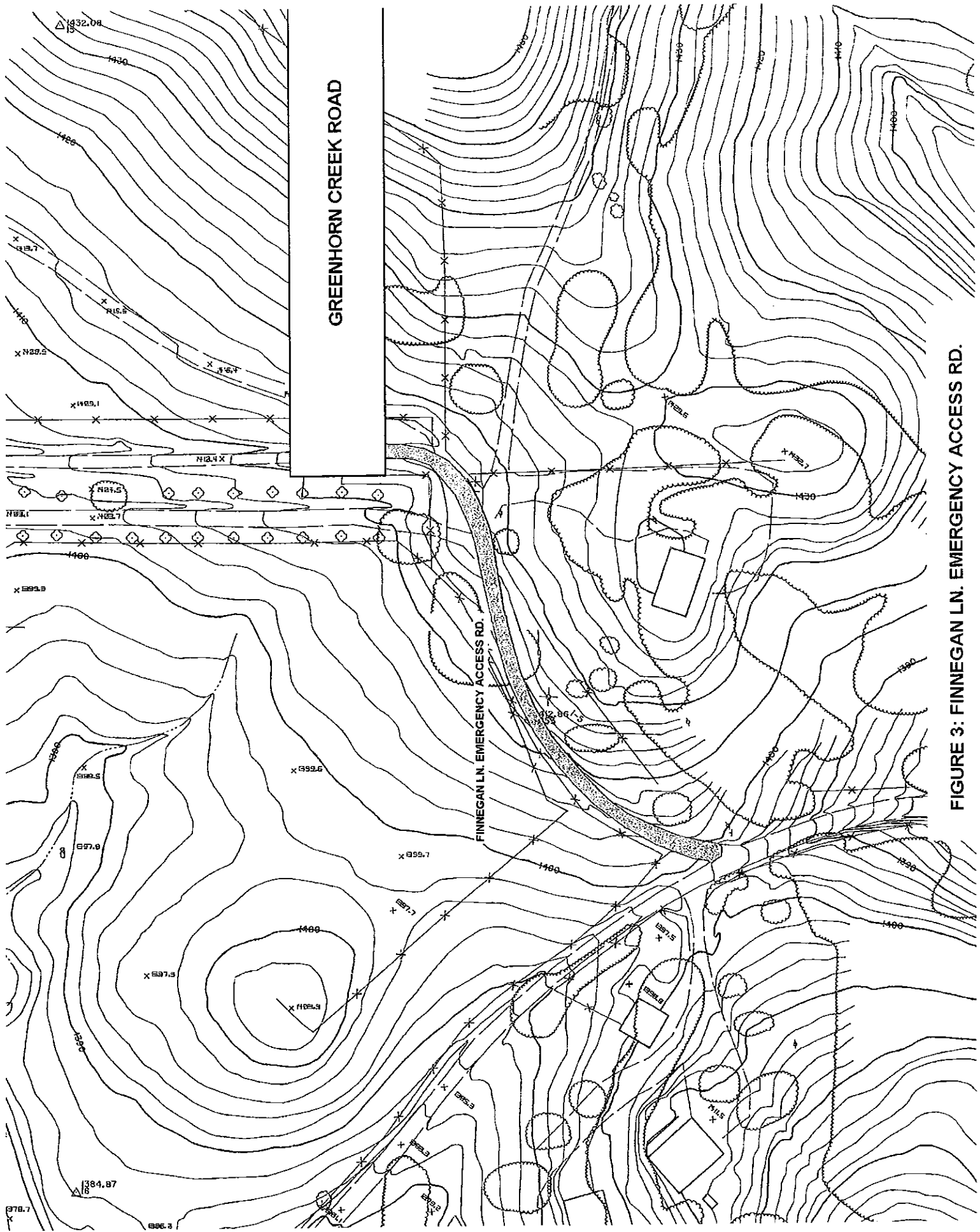


FIGURE 3: FINNEGAN LN. EMERGENCY ACCESS RD.

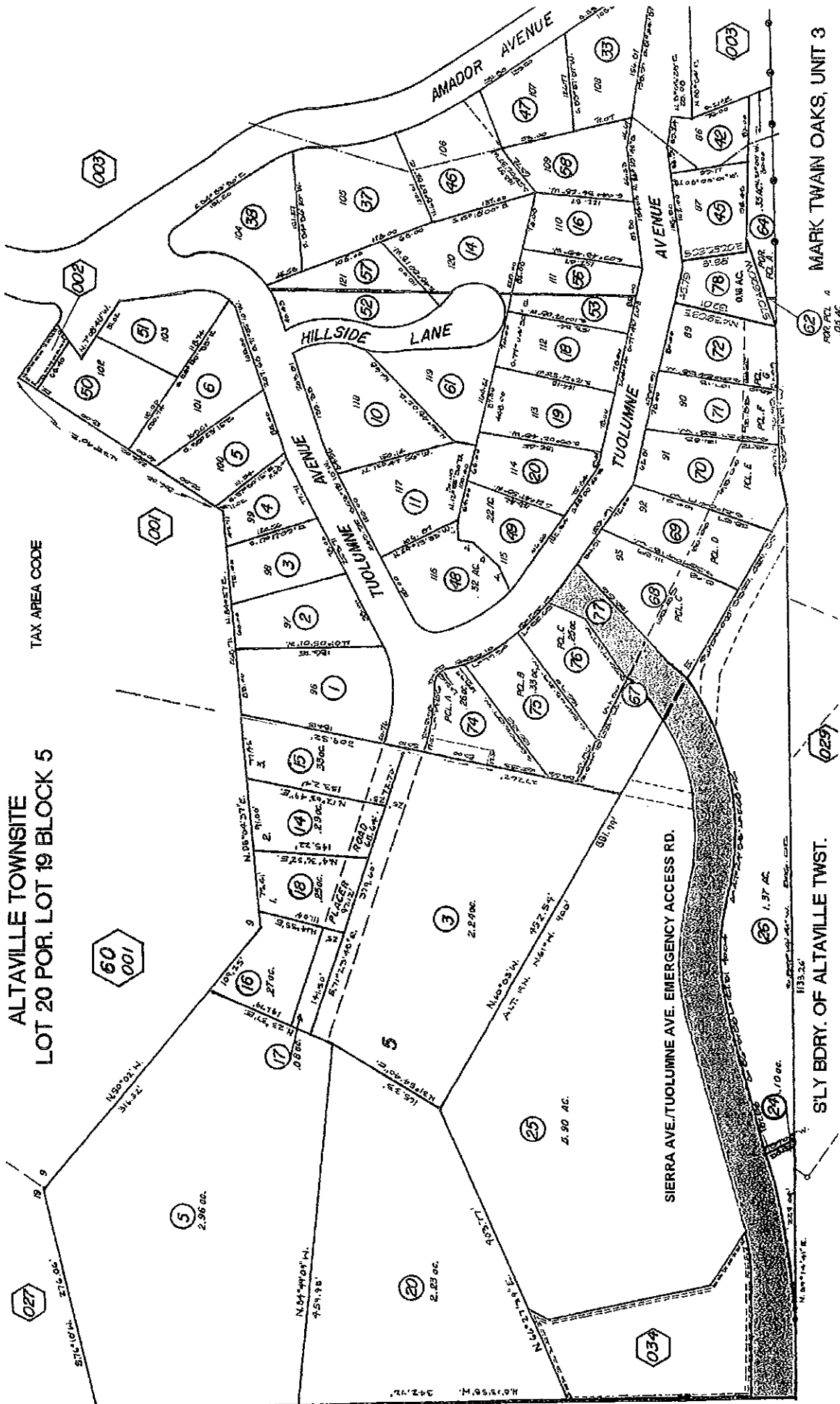


FIGURE 4: SIERRA AVE./TUOLUMNE AVE. EMERGENCY ACCESS RD.

TABLE 1

**GREENHORN CREEK ACCESS ROADS
ACCESS B: McCAULEY RANCH ROAD TO GOLD CLIFF ROAD
CITY OF ANGELS MINOR STREET TEMPLATE**

ITEM NO.	DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ITEM TOTAL
1	CLEARING AND GRUBBING	LS	1	\$5,000.00	\$5,000.00
2	EARTHWORK	LS	1	\$10,000.00	\$10,000.00
3	EROSION CONTROL	LS	1	\$5,000.00	\$5,000.00
4	ASPHALT CONCRETE (2.0")	TN	328	\$80.00	\$26,240.00
5	AGGREGATE BASE (9.5")	CY	785	\$40.00	\$31,400.00
6	MISC. CONCRETE (CURB AND GUTTER)	LF	1940	\$20.00	\$38,800.00
7	MISC. CONCRETE (SIDEWALK)	SF	3880	\$7.00	\$27,160.00
8	SIGNS	EA	4	\$200.00	\$800.00
9	REMOVE EXIST BARRICADES	LS	1	\$2,000.00	\$2,000.00
10	COA TYPE II DROP INLET	EA	2	\$4,000.00	\$8,000.00
11	THERMOPLASTIC STRIPING	LF	970	\$5.00	\$4,850.00
12	THERMOPLASTIC PAVEMENT MARKINGS	SF	68	\$17.00	\$1,156.00
13	6" PVC SANITARY SEWER	LF	970	\$50.00	\$48,500.00
14	SANITARY SEWER MANHOLE	EA	4	\$3,500.00	\$14,000.00

SUBTOTAL: \$222,906.00

20% CONSTRUCTION CONTINGENCY: \$44,581.20

TOTAL CONSTRUCTION COST: \$267,487.20

ENVIRONMENTAL DOCUMENT: \$25,000.00

RIGHT OF WAY ACQUISITION (1.6 AC. @ \$50,000/AC): \$80,000.00

25% ENGINEERING AND ADMINISTRATION: \$66,871.80

TOTAL PROJECT COST: \$439,359.00

TABLE 2

**GREENHORN CREEK ACCESS ROADS
ACCESS B: GOLD CLIFF RD. IMPROVEMENTS
24' PAVED SECTION**

ITEM NO.	DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ITEM TOTAL
1	CLEARING AND GRUBBING	LS	1	\$15,000.00	\$15,000.00
2	EARTHWORK	LS	1	\$45,000.00	\$45,000.00
3	EROSION CONTROL	LS	1	\$8,000.00	\$8,000.00
4	ASPHALT CONCRETE (2.0")	TN	100	\$80.00	\$8,000.00
5	AGGREGATE BASE (9.5")	CY	200	\$40.00	\$8,000.00
6	DRIVEWAY RESTORATION	LS	1	\$10,000.00	\$10,000.00
7	12" DIA. CMP	LF	10	\$20.00	\$200.00
8	THERMOPLASTIC STRIPING	LF	630	\$5.00	\$3,150.00
9	POWER POLE RELOCATION	LS	1	\$25,000.00	\$25,000.00
10	WATER SYSTEM MODIFICATIONS	LS	1	\$15,000.00	\$15,000.00

SUBTOTAL: \$137,350.00

20% CONSTRUCTION CONTINGENCY: \$27,470.00

TOTAL CONSTRUCTION COST: \$164,820.00

ENVIRONMENTAL DOCUMENT: \$15,000.00

RIGHT OF WAY ACQUISITION (.3 AC. @ \$50,000/AC): \$15,000.00

25% ENGINEERING AND ADMINISTRATION: \$41,205.00

TOTAL PROJECT COST: \$236,025.00

TABLE 3

**GREENHORN CREEK ACCESS ROADS
ACCESS B: HILLCREST STREET IMPROVEMENTS
24' PAVED SECTION**

ITEM NO.	DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ITEM TOTAL
1	CLEARING AND GRUBBING	LS	1	\$10,000.00	\$10,000.00
2	TRAFFIC CONTROL	LS	1	\$7,500.00	\$7,500.00
3	EARTHWORK	LS	1	\$30,000.00	\$30,000.00
4	EROSION CONTROL	LS	1	\$6,000.00	\$6,000.00
5	ASPHALT CONCRETE (2.0")	TN	35	\$80.00	\$2,800.00
6	AGGREGATE BASE (9.5")	CY	120	\$40.00	\$4,800.00
7	DRIVEWAY RESTORATION	LS	1	\$10,000.00	\$10,000.00
8	THERMOPLASTIC STRIPING	LF	430	\$5.00	\$2,150.00
9	WATER SYSTEM MODIFICATIONS	LS	1	\$10,000.00	\$10,000.00

SUBTOTAL: \$83,250.00

20% CONSTRUCTION CONTINGENCY: \$16,650.00

TOTAL CONSTRUCTION COST: \$99,900.00

ENVIRONMENTAL DOCUMENT: \$15,000.00

RIGHT OF WAY ACQUISITION (.2 AC. @ \$50,000/AC): \$10,000.00

25% ENGINEERING AND ADMINISTRATION: \$24,975.00

TOTAL PROJECT COST: \$149,875.00

TABLE 4

**GREENHORN CREEK ACCESS ROADS
ACCESS A: SIERRA AVE. TO TUOLUMNE AVE.
CITY OF ANGELS MINOR STREET TEMPLATE**

ITEM NO.	DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ITEM TOTAL
1	CLEARING AND GRUBBING	LS	1	\$25,000.00	\$25,000.00
2	EARTHWORK	LS	1	\$50,000.00	\$50,000.00
3	EROSION CONTROL	LS	1	\$10,000.00	\$10,000.00
4	ASPHALT CONCRETE (2.0")	TN	325	\$80.00	\$26,000.00
5	AGGREGATE BASE (9.5")	CY	887	\$40.00	\$35,480.00
6	MISC. CONCRETE (CURB AND GUTTER)	LF	1800	\$20.00	\$36,000.00
7	MISC. CONCRETE (SIDEWALK)	SF	3600	\$7.00	\$25,200.00
8	SIGNS	EA	4	\$200.00	\$800.00
9	REMOVE EXIST BARRICADES	LS	2	\$2,000.00	\$4,000.00
10	COA TYPE II DROP INLET	EA	2	\$4,000.00	\$8,000.00
11	36" DIA. CMP	LF	70	\$80.00	\$5,600.00
12	THERMOPLASTIC STRIPING	LF	900	\$5.00	\$4,500.00
13	THERMOPLASTIC PAVEMENT MARKINGS	SF	68	\$17.00	\$1,156.00

SUBTOTAL: \$231,736.00

20% CONSTRUCTION CONTINGENCY: \$46,347.20

TOTAL CONSTRUCTION COST: \$278,083.20

ENVIRONMENTAL DOCUMENT: \$30,000.00

RIGHT OF WAY ACQUISITION (1.1 AC. @ \$50,000/AC): \$55,000.00

25% ENGINEERING AND ADMINISTRATION: \$69,520.80

TOTAL PROJECT COST: \$432,604.00

TABLE 5

**GREENHORN CREEK ACCESS ROADS
ACCESS C: GREENHORN CREEK RD. TO FINNEGAN LANE
24' PAVED SECTION WITH 4' SHOULDERS**

ITEM NO.	DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ITEM TOTAL
1	CLEARING AND GRUBBING	LS	1	\$15,000.00	\$15,000.00
2	TRAFFIC CONTROL	LS	1	\$2,500.00	\$2,500.00
3	EARTHWORK	LS	1	\$45,000.00	\$45,000.00
4	EROSION CONTROL	LS	1	\$9,000.00	\$9,000.00
5	ASPHALT CONCRETE (2.0")	TN	185	\$80.00	\$14,800.00
6	AGGREGATE BASE (9.5")	CY	590	\$40.00	\$23,600.00
7	DRIVEWAY RESTORATION	LS	1	\$5,000.00	\$5,000.00
8	SIGNS	EA	2	\$200.00	\$400.00
9	THERMOPLASTIC STRIPING	LF	600	\$5.00	\$3,000.00
10	THERMOPLASTIC PAVEMENT MARKINGS	SF	68	\$17.00	\$1,156.00
11	DRAINAGE IMPROVEMENTS	LS	1	\$15,000.00	\$15,000.00

SUBTOTAL: \$134,456.00

20% CONSTRUCTION CONTINGENCY: \$26,891.20

TOTAL CONSTRUCTION COST: \$161,347.20

ENVIRONMENTAL DOCUMENT: \$30,000.00

RIGHT OF WAY ACQUISITION (.8 AC. @ \$50,000/AC): \$40,000.00

25% ENGINEERING AND ADMINISTRATION: \$40,336.80

TOTAL PROJECT COST: \$271,684.00